1. An axon transmits messages _____ the cell body and a dendrite transmits messages _____ the cell body.
   A) away from; toward
   B) away from; away from
   C) toward; away from
   D) toward; toward

2. To excite or inhibit an action potential in a receiving neuron, a neurotransmitter must cross the
   A) axon.
   B) synaptic gap.
   C) myelin sheath.
   D) endocrine glands.

3. The release of _____ to muscle cell receptors triggers muscle contractions.
   A) ACh
   B) serotonin
   C) dopamine
   D) adrenaline

4. Depressed mood states are linked to _____ levels of serotonin and _____ levels of norepinephrine.
   A) low; low
   B) high; high
   C) low; high
   D) high; low

5. A drug molecule that increases the release of a neurotransmitter into the synaptic gap is a(n)
   A) glutamate.
   B) steroid.
   C) agonist.
   D) opiate.

6. The peripheral nervous system consists of
   A) interneurons.
   B) the spinal cord.
   C) endocrine glands.
   D) sensory and motor neurons.

7. The autonomic nervous system most directly controls
   A) speech production.
   B) thinking and memory.
   C) movement of the arms and legs.
   D) bladder contractions.

8. Although Ron has no genital sensations, he is capable of an erection if his genitals are stimulated. Ron's experience is most indicative of a(n)
   A) morphine antagonist.
   B) severed spinal cord.
   C) synaptic gap.
   D) all-or-none response.

9. The release of epinephrine and norepinephrine _____ blood pressure and _____ blood sugar levels.
   A) raises; raises
   B) lowers; lowers
   C) raises; lowers
   D) lowers; raises

10. To monitor the electrical activity in the brain that is triggered by hearing one's own name, researchers would make use of a(n)
   A) MRI.
   B) PET scan.
   C) EEG.
   D) brain lesion.

11. Your life would be most immediately threatened if you suffered destruction of the
   A) amygdala.
   B) hippocampus.
   C) cerebellum.
   D) medulla.

12. Stimulation of the reticular formation will cause a
   A) sleeping cat to awaken.
   B) hungry cat to stop eating.
   C) violent cat to become passive.
   D) thirsty cat to drink.

13. When people were shown happy and angry faces, their _____ was found to activate in response to the angry faces.
    A) thalamus
    B) hypothalamus
    C) basal ganglia
    D) amygdala

14. Research has suggested that a reward deficiency syndrome may contribute to
    A) insomnia.
    B) substance use disorders.
    C) schizophrenia.
    D) Parkinson's disease.

15. Which lobe of the cerebral cortex is most directly involved in speaking?
    A) occipital
    B) frontal
    C) temporal
    D) parietal

16. The visual cortex is located in the
    A) occipital lobes.
    B) parietal lobes.
    C) temporal lobes.
    D) association areas.

17. Following massive damage to his frontal lobes, Phineas Gage was most strikingly debilitated by
    A) muscle spasms.
    B) memory loss.
    C) auditory hallucinations.
    D) irritability.

18. Brain scans indicate that well-practiced pianists have a larger-than-usual auditory cortex area that encodes piano sounds. This best illustrates
    A) neurogenesis.
    B) lateralization.
    C) cognitive neural prosthetics.
    D) plasticity.

19. Research with split-brain patients suggests that the _____ typically constructs the theories people offer to explain their own behaviors.
    A) corpus callosum
    B) left cerebral hemisphere
    C) somatosensory cortex
    D) right cerebral hemisphere

Answer Key

1. A
2. B
3. A
4. A
5. C
6. D
7. D
8. B
9. A
10. C
11. D
12. A
13. D
14. B
15. B
16. A
17. D
18. D
19. B

1. After Lola began using a street drug to enhance her moods, she discovered that she needed larger and larger doses of the drug in order to feel the drug's effect. Use your understanding of the neurotransmission process to explain Lola's experience.

2. The ancient Greek physician Hippocrates believed that four basic body fluids (blood, black bile, yellow bile, and phlegm) influenced human behavior, emotions, and personality. Use your understanding of the body's rapid and slower chemical communication systems to support or refute the general logic of Hippocrates' theory.

3. Describe specific functions of our older brain structures, which reveal that our brains are responsible for much more than simply our capacity to think.

4. After suffering a head injury in an auto accident, Alyssa says that she remembers what her mother looks like, and she can accurately recall many of her mother's distinctive facial features. However, when she is shown pictures of her mother, Alyssa is unable to recognize who it is, even though she can see clearly. Use your understanding of the functioning brain to account for Alyssa's strange pattern of experience.

5. Describe how an understanding of both a normally functioning brain and a split brain enables us to better appreciate the fact that most information processing takes place outside of conscious awareness.

Answer Key

1.
2.
3.
4.
5.

1. The ancient Greek philosopher Plato located the mind in the
   A) head.
   B) heart.
   C) stomach.
   D) thyroid gland.

2. Phrenology highlighted the presumed functions of
   A) specific brain regions.
   B) synaptic gaps.
   C) endorphins.
   D) the myelin sheath.

3. The person most likely to suggest that the shape of a person's skull indicates the extent to which that individual is argumentative and aggressive would be a
   A) neurologist.
   B) behavior geneticist.
   C) psychoanalyst.
   D) phrenologist.

4. Although phrenology incorrectly suggested that bumps on the skull revealed a person's character traits, phrenology did succeed in focusing attention on
   A) synaptic gaps.
   B) action potentials.
   C) the localization of function.
   D) endorphins.

5. A focus on the links between brain activity and behavior is most characteristic of psychologists who work from a _____ perspective.
   A) psychodynamic
   B) cognitive
   C) behavioral
   D) biological

6. Dr. Wolski conducts research on the potential relationship between neurotransmitter deficiencies and mood states. Dr. Wolski's research focus is most characteristic of
   A) phrenology.
   B) the biological perspective.
   C) psychoanalysis.
   D) social psychology.

7. A psychologist working from the biological perspective would be most interested in conducting research on the relationship between
   A) neurotransmitters and depression.
   B) skull shape and bone density.
   C) self-esteem and popularity.
   D) genetics and eye color.

8. To fully appreciate the interaction of neural activity, mental processes, and the functioning of human communities, it is most necessary to recognize that people are
   A) consciously aware.
   B) morally accountable.
   C) biopsychosocial systems.
   D) products of multiple neural networks.

9. Dendrites are branching extensions of
   A) neurotransmitters.
   B) endorphins.
   C) neurons.
   D) glial cells.

10. The function of dendrites is to
    A) receive incoming signals from other neurons.
    B) release neurotransmitters into the spatial junctions between neurons.
    C) coordinate the activation of the parasympathetic and sympathetic nervous systems.
    D) control pain through the release of opiate-like chemicals into the brain.

11. An axon is
    A) a cell that serves as the basic building block of the nervous system.
    B) a layer of fatty tissue that encases the fibers of many neurons.
    C) a molecule that blocks neurotransmitter receptor sites.
    D) the extension of a neuron that carries messages away from the cell body.

12. The longest part of a motor neuron is likely to be the
    A) dendrite.
    B) axon.
    C) cell body.
    D) synapse.

13. In transmitting sensory information to the brain, an electrical signal travels from the _____ of a single neuron.
    A) dendrites to the axon to the cell body
    B) axon to the cell body to the dendrites
    C) dendrites to the cell body to the axon
    D) axon to the dendrites to the cell body

14. A myelin sheath is a
    A) nerve network within the spinal cord that controls physical arousal.
    B) large band of neural fibers connecting the two adrenal glands.
    C) layer of fatty tissue encasing the axons of some nerve cells.
    D) bushy extension of a neuron that conducts impulses toward the cell body.

15. The speed at which a neural impulse travels is increased when the axon is encased by a(n)
    A) endorphin.
    B) myelin sheath.
    C) glial cell.
    D) synaptic vesicle.

16. Degeneration of the myelin sheath results in
    A) reuptake.
    B) multiple sclerosis.
    C) the fight-or-flight response.
    D) an action potential.

17. Neurons are surrounded by _____, which guide neural connections and mop up ions and neurotransmitters.
    A) endorphins
    B) glial cells
    C) hormones
    D) agonists

18. One function of glial cells is to
    A) increase the speed of neural impulses.
    B) mimic the effects of neurotransmitters.
    C) provide nutrients to neurons.
    D) stimulate the production of hormones.

19. Which brain cells play a role in learning and memory by communicating with neurons?
    A) endorphins
    B) glial cells
    C) agonists
    D) myelin cells

20. A brief electrical charge that travels down the axon of a neuron is called the
    A) synapse.
    B) agonist.
    C) action potential.
    D) refractory period.

21. Mathematical computations by a computer are faster than your quickest mathematical computations because the top speed of a neural impulse is about _____ times slower than the speed of electricity in a computer.
    A) 3 hundred
    B) 3 thousand
    C) 3 hundred thousand
    D) 3 million

22. An action potential is generated by the movement of
    A) glial cells.
    B) glands.
    C) vesicles.
    D) ions.

23. Neurons generate electricity from a chemical process involving the exchange of
    A) ions.
    B) enzymes.
    C) cortisol.
    D) oxytocin.

24. The resting potential of an axon results from the fact that an axon membrane is
    A) encased by a myelin sheath.
    B) selectively permeable.
    C) sensitive to neurotransmitter molecules.
    D) part of a larger neural network.

25. The depolarization of a neural membrane can create a(n)
    A) action potential.
    B) myelin sheath.
    C) neural network.
    D) interneuron.

26. During a resting pause following depolarization, the sodium/potassium pump transports _____ ions _____ a neuron.
    A) positively charged; into
    B) negatively charged; into
    C) positively charged; out of
    D) negatively charged; out of

27. With regard to the process of neural transmission, a refractory period refers to a time interval in which
    A) a neuron fires more rapidly than usual.
    B) an electrical charge travels from a sensory neuron to a motor neuron.
    C) positively charged sodium ions are pumped back outside a neural membrane.
    D) an individual reflexively withdraws from a pain stimulus.

28. The minimum level of stimulation required to trigger a neural impulse is called the
    A) reflex.
    B) threshold.
    C) synapse.
    D) action potential.

29. Excitatory signals to a neuron must exceed inhibitory signals by a minimum intensity in order to trigger
    A) reuptake.
    B) a refractory period.
    C) an action potential.
    D) selective permeability.

30. Increasing excitatory signals above the threshold for neural activation will not affect the intensity of an action potential. This indicates that a neuron's reaction is
    A) inhibited by the myelin sheath.
    B) delayed by the refractory period.
    C) an all-or-none response.
    D) dependent on neurotransmitter molecules.

31. A neuron's reaction of either firing at full strength or not firing at all is described as
    A) an all-or-none response.
    B) a refractory period.
    C) the resting potential.
    D) reflexive response.

32. A slap on the back is more painful than a pat on the back because a slap triggers
    A) the release of endorphins.
    B) more intense neural impulses.
    C) the release of GABA.
    D) more neurons to fire, and to fire more often.

33. Sir Charles Sherrington observed that impulses took an unexpectedly long time to travel a neural pathway. His observation provided evidence for the existence of
    A) antagonists.
    B) synaptic gaps.
    C) interneurons.
    D) neural networks.

34. A synapse is a(n)
    A) chemical messenger that triggers muscle contractions.
    B) automatic response to sensory input.
    C) junction between a sending neuron and a receiving neuron.
    D) neural cable containing many axons.

35. The axon of a sending neuron is separated from the dendrite of a receiving neuron by a
    A) myelin sheath.
    B) neural network.
    C) glial cell.
    D) synaptic gap.

36. The chemical messengers released into the spatial junctions between neurons are called
    A) hormones.
    B) neurotransmitters.
    C) synapses.
    D) genes.

37. Neurotransmitters are released from vesicles located on knob-like terminals at the end of the
    A) dendrites.
    B) cell body.
    C) axon.
    D) myelin sheath.

38. Reuptake refers to the
    A) movement of neurotransmitter molecules across a synaptic gap.
    B) release of hormones into the bloodstream.
    C) inflow of positively charged ions through an axon membrane.
    D) reabsorption of excess neurotransmitter molecules by a sending neuron.

39. The number of neurotransmitter molecules located within a specific synaptic gap would most clearly be reduced by
    A) an action potential.
    B) ACh-producing neurons.
    C) acupuncture.
    D) reuptake.

40. Which neurotransmitter plays the most direct role in learning and memory?
    A) dopamine
    B) acetylcholine
    C) GABA
    D) oxytocin

41. Acetylcholine is a neurotransmitter that
    A) causes sleepiness.
    B) lessens physical pain.
    C) reduces depressed moods.
    D) triggers muscle contractions.

42. Mr. Anderson suffers from Parkinson's disease and his shaking arm movements are so severe that he has difficulty feeding or dressing himself without help. His symptoms are most likely to be linked with an undersupply of the neurotransmitter
    A) cortisol.
    B) dopamine.
    C) serotonin.
    D) oxytocin.

43. Schizophrenia is most closely linked with an oversupply of the neurotransmitter
    A) dopamine.
    B) epinephrine.
    C) acetylcholine.
    D) serotonin.

44. An undersupply of serotonin is most closely linked to
    A) Alzheimer's disease.
    B) schizophrenia.
    C) Parkinson's disease.
    D) depression.

45. An undersupply of the major inhibitory neurotransmitter known as _____ is linked to seizures.
    A) glutamate
    B) GABA
    C) serotonin
    D) ACh

46. Jacob's severe migraine headaches have led him to seek medical help. It is likely that his symptoms are most closely linked with an
    A) oversupply of GABA.
    B) undersupply of serotonin.
    C) oversupply of glutamate.
    D) undersupply of acetylcholine.

47. Endorphins are
    A) neurotransmitters.
    B) sex hormones.
    C) endocrine glands.
    D) glial cells.

48. Opiate drugs occupy the same receptor sites as
    A) serotonin.
    B) endorphins.
    C) dopamine.
    D) epinephrine.

49. Which of the following is an opiate that elevates mood and eases pain?
    A) melatonin
    B) acetylcholine
    C) morphine
    D) glutamate

50. José has just played a long, bruising football game but feels little fatigue or discomfort. His lack of pain is most likely caused by the release of
    A) glutamate.
    B) dopamine.
    C) acetylcholine.
    D) endorphins.

51. The body's natural production of endorphins is likely to be
    A) increased by heroin use and increased by vigorous exercise.
    B) decreased by heroin use and decreased by vigorous exercise.
    C) increased by heroin use and decreased by vigorous exercise.
    D) decreased by heroin use and increased by vigorous exercise.

52. Jason's intensely uncomfortable withdrawal symptoms following heroin use were probably due in part to a reduction in his body's normal production of
    A) dopamine.
    B) epinephrine.
    C) acetylcholine.
    D) endorphins.

53. A drug molecule that increases a neurotransmitter's action is called a(n)
    A) antagonist.
    B) endorphin.
    C) agonist.
    D) steroid.

54. Any drug molecule that occupies a neurotransmitter receptor site and blocks its effect is a(n)
    A) glutamate.
    B) agonist.
    C) opiate.
    D) antagonist.

55. Any drug molecule that blocks the reuptake of a neurotransmitter is a(n)
    A) steroid.
    B) agonist.
    C) endorphin.
    D) antagonist.

56. Endorphin agonists are likely to _____ one's immediate pain, and endorphin antagonists are likely to _____ one's immediate pain.
    A) decrease; increase
    B) increase; decrease
    C) increase; increase
    D) decrease; decrease

57. Botulin poisoning from improperly canned food causes paralysis by blocking the release of
    A) endorphins.
    B) epinephrine.
    C) acetylcholine.
    D) dopamine.

58. Madison is experiencing symptoms of paralysis after eating food contaminated by botulin. Her paralysis is most likely to be relieved by a drug that functions as a(n)
    A) ACh agonist.
    B) serotonin agonist.
    C) ACh antagonist.
    D) serotonin antagonist.

59. The nervous system is the
    A) complete set of glands that secrete hormones into the bloodstream.
    B) region of the brain below the cerebral hemispheres that regulates emotion.
    C) nerve network running through the brainstem that controls arousal.
    D) electrochemical communication network that includes all the body's neurons.

60. The two major divisions of the nervous system are the central and the _____ nervous systems.
    A) autonomic
    B) sympathetic
    C) somatic
    D) peripheral

61. The central nervous system consists of
    A) sensory and motor neurons.
    B) somatic and autonomic systems.
    C) the brain and the spinal cord.
    D) sympathetic and parasympathetic branches.

62. Messages are transmitted from your spinal cord to muscles in your hands by the _____ nervous system.
    A) peripheral
    B) parasympathetic
    C) sympathetic
    D) autonomic

63. Information travels through axons that are bundled into the cables we call
    A) interneurons.
    B) action potentials.
    C) nerves.
    D) reflex pathways.

64. You feel the pain of a sprained ankle when _____ relay(s) messages from your ankle to your central nervous system.
    A) the myelin sheath
    B) interneurons
    C) motor neurons
    D) sensory neurons

65. Sensory neurons are located in the
    A) synaptic gaps.
    B) endocrine system.
    C) peripheral nervous system.
    D) myelin sheath.

66. Sensory neurons are _____ neurons, and motor neurons are _____ neurons.
    A) agonist; antagonist
    B) afferent; efferent
    C) antagonist; agonist
    D) efferent; afferent

67. Neurons that function within the brain and spinal cord are called
    A) sensory neurons.
    B) interneurons.
    C) endorphins.
    D) motor neurons.

68. Central nervous system neurons that process information between sensory inputs and motor outputs are called
    A) neurotransmitters.
    B) interneurons.
    C) synapses.
    D) dendrites.

69. The vast majority of neurons in the body's nervous system are
    A) glial cells.
    B) interneurons.
    C) motor neurons.
    D) sensory neurons.

70. Information is carried from the central nervous system to the body's tissues by
    A) interneurons.
    B) sensory neurons.
    C) motor neurons.
    D) adrenal glands.

71. Some neurons enable you to grasp objects by relaying outgoing messages to the muscles in your arms and hands. These neurons are called
    A) interneurons.
    B) sensory neurons.
    C) neurotransmitters.
    D) motor neurons.

72. Motor neurons transmit signals to
    A) glands.
    B) interneurons.
    C) sensory neurons.
    D) all of these parts.

73. The two divisions of the peripheral nervous system are the
    A) brain and spinal cord.
    B) sympathetic nervous system and parasympathetic nervous system.
    C) endocrine system and circulatory system.
    D) somatic nervous system and the autonomic nervous system.

74. The somatic nervous system is a component of the _____ nervous system.
    A) peripheral
    B) central
    C) sympathetic
    D) parasympathetic

75. The part of the peripheral nervous system that controls the movements of your mouth and jaws as you eat is called the
    A) somatic nervous system.
    B) sympathetic nervous system.
    C) endocrine system.
    D) autonomic nervous system.

76. The part of the peripheral nervous system that controls the glands and the muscles of the internal organs is called the
    A) somatic nervous system.
    B) endocrine system.
    C) sensory nervous system.
    D) autonomic nervous system.

77. Messages are transmitted from your spinal cord to your heart muscles by the
    A) sensory nervous system.
    B) somatic nervous system.
    C) central nervous system.
    D) autonomic nervous system.

78. Which division of the autonomic nervous system arouses the body and mobilizes its energy in stressful situations?
    A) the parasympathetic nervous system
    B) the sympathetic nervous system
    C) the somatic nervous system
    D) the central nervous system

79. You come home one night to find a burglar in your house. Your heart starts racing and you begin to perspire. These physical reactions are triggered by the
    A) somatic nervous system.
    B) sympathetic nervous system.
    C) parasympathetic nervous system.
    D) sensory nervous system.

80. The parasympathetic nervous system
    A) stimulates digestion and slows heartbeat.
    B) inhibits digestion and accelerates heartbeat.
    C) stimulates digestion and accelerates heartbeat.
    D) inhibits digestion and slows heartbeat.

81. After discovering that the shadows outside his window were only the trees in the yard, Ralph's blood pressure decreased and his heartbeat slowed. These physical reactions were most directly regulated by his
    A) parasympathetic nervous system.
    B) sympathetic nervous system.
    C) somatic nervous system.
    D) sensory nervous system.

82. The sympathetic and parasympathetic nervous systems work together to keep you in a steady internal state called
    A) depolarization.
    B) reuptake.
    C) homeostasis.
    D) the resting potential.

83. An accelerated heartbeat is to a slowed heartbeat as the _____ nervous system is to the _____ nervous system.
    A) somatic; autonomic
    B) autonomic; somatic
    C) sympathetic; parasympathetic
    D) parasympathetic; sympathetic

84. Neural networks refer to
    A) the branching extensions of a neuron.
    B) interrelated clusters of neurons in the central nervous system.
    C) neural cables containing many axons.
    D) junctions between sending and receiving neurons.

85. The strengthening of synaptic connections facilitates the formation of
    A) interneurons.
    B) endorphins.
    C) neural networks.
    D) glial cells.

86. A football quarterback can simultaneously make calculations of receiver distances, player movements, and gravitational forces. This best illustrates the activity of multiple
    A) endocrine glands.
    B) endorphin agonists.
    C) neural networks.
    D) acetylcholine antagonists.

87. The part of the central nervous system that carries information from your senses to your brain and motor-control information to your body parts is the
    A) pituitary gland.
    B) pancreas.
    C) spinal cord.
    D) myelin sheath.

88. A simple, automatic, inborn response to a sensory stimulus is called a(n)
    A) neural network.
    B) action potential.
    C) neurotransmitter.
    D) reflex.

89. The knee-jerk reflex is controlled by interneurons in the
    A) synaptic gap.
    B) spinal cord.
    C) sympathetic nervous system.
    D) parasympathetic nervous system.

90. In a tragic diving accident, Andrew damaged his spinal cord. As a result, his legs were paralyzed. Andrew's injury was located in his
    A) somatic nervous system.
    B) autonomic nervous system.
    C) sympathetic nervous system.
    D) central nervous system.

91. Aaron consistently exhibits a knee-jerk response without having any sensations of the taps on his knees. Aaron's experience is most indicative of
    A) botulin poisoning.
    B) a severed spinal cord.
    C) a sympathetic nervous system injury.
    D) a refractory period.

92. The endocrine system consists of the
    A) communication network that includes all the body's neurons.
    B) regions of the brain that regulate emotion.
    C) interneurons within the spinal cord.
    D) glands that secrete hormones.

93. Hormones are the chemical messengers of the
    A) autonomic nervous system.
    B) somatic nervous system.
    C) endocrine system.
    D) central nervous system.

94. The speedy nervous system zips messages by way of neurotransmitters. Endocrine messages, however, are delivered more slowly because hormones travel through
    A) myelinated neurons.
    B) the bloodstream.
    C) glial cells.
    D) interneurons.

95. The ovaries in females and the testes in males are part of the
    A) somatic nervous system.
    B) endocrine system.
    C) autonomic nervous system.
    D) central nervous system.

96. The release of hormones by the adrenal glands is most likely to trigger
    A) depression.
    B) the fight-or-flight response.
    C) the pain reflex.
    D) a refractory period.

97. Although brain-damaged patients did not consciously recall having watched a sad film, their sad emotion persisted thanks to the lingering effects of
    A) endorphins.
    B) the pain reflex.
    C) hormones.
    D) the refractory period.

98. If a professor accused you of cheating on a test, your adrenal glands would probably release _____ into your bloodstream.
    A) endorphins
    B) acetylcholine
    C) epinephrine
    D) insulin

99. The release of epinephrine into the bloodstream is most likely to
    A) increase blood sugar.
    B) lower blood pressure.
    C) stimulate digestion.
    D) decrease perspiration.

100. The master gland of the endocrine system is the
    A) thyroid gland.
    B) adrenal gland.
    C) pituitary gland.
    D) pancreas.

101. At the age of 22, Mrs. LaBlanc was less than 4 feet tall. Her short stature was probably influenced by the lack of a growth hormone produced by the
    A) pancreas.
    B) thyroid.
    C) adrenal gland.
    D) pituitary gland.

102. During a laboratory game, those given a nasal squirt of _____ rather than a placebo were more likely to trust strangers with their money.
    A) epinephrine
    B) oxytocin
    C) dopamine
    D) serotonin

103. Oxytocin is secreted by the
    A) pancreas.
    B) thyroid gland.
    C) pituitary gland.
    D) adrenal gland.

104. The hypothalamus influences the _____ to send messages to the _____.
    A) adrenal glands; pancreas
    B) pituitary; endocrine glands
    C) motor neurons; sensory neurons
    D) somatic nervous system; autonomic nervous system

105. The release of cortisol into the bloodstream is most likely to
    A) increase blood sugar.
    B) lower blood pressure.
    C) stimulate digestion.
    D) decrease perspiration.

106. Surgical destruction of brain tissue is called a(n)
    A) EEG.
    B) synapse.
    C) lesion.
    D) MRI.

107. An amplified recording of the waves of electrical activity that sweep across the surface of the brain is called a(n)
    A) fMRI.
    B) EEG.
    C) PET scan.
    D) MRI.

108. The release of gamma waves from radioactive blood sugar in different regions of the brain is detected by
    A) an MRI scan.
    B) an EEG.
    C) a PET scan.
    D) fMRI.

109. Magnetic resonance imaging uses magnetic fields and _____ to produce computer-generated images of soft tissue.
    A) radio waves
    B) brain lesions
    C) a radioactive form of glucose
    D) electrodes placed on the scalp

110. To identify which of Lucy's brain areas was most active when she talked, neuroscientists gave her a temporarily radioactive form of glucose and a(n)
    A) fMRI.
    B) PET scan.
    C) EEG.
    D) MRI scan.

111. The best way to detect enlarged fluid-filled brain regions in some patients who have schizophrenia is to use a(n)
    A) EEG.
    B) MRI.
    C) PET scan.
    D) brain lesion.

112. To detect Mr. Ziegler's loss of brain tissue from a degenerative disease, his physicians are most likely to request that he receive a(n)
    A) EEG.
    B) MRI scan.
    C) brain lesion.
    D) PET scan.

113. To identify which specific brain areas are most active during a particular mental task, researchers would be most likely to make use of a(n)
    A) fMRI.
    B) microelectrode insertion.
    C) MRI.
    D) brain lesion.

114. A new _____ technique provides greatly increased resolution for mapping neural pathways across large areas of the brain.
    A) positron emission tomography
    B) electroencephalogram
    C) diffusion spectrum imaging
    D) microelectrode insertion

115. The sequence of brain regions from the evolutionarily oldest to newest is
    A) limbic system, brainstem, cerebral cortex.
    B) brainstem, cerebral cortex, limbic system.
    C) limbic system, cerebral cortex, brainstem.
    D) brainstem, limbic system, cerebral cortex.

116. The part of the brainstem that controls heartbeat and breathing is called the
    A) cerebellum.
    B) medulla.
    C) amygdala.
    D) thalamus.

117. If your _____ is destroyed, the left side of your brain could not control the movements of your right hand.
    A) brainstem
    B) hippocampus
    C) amygdala
    D) hypothalamus

118. The part of the brainstem that helps to coordinate movements is called the
    A) nucleus accumbens.
    B) hippocampus.
    C) amygdala.
    D) pons.

119. Which brain structure receives information from all the senses except smell?
    A) hippocampus
    B) amygdala
    C) pons
    D) thalamus

120. Jason lost his sense of taste due to a tumor that caused damage to a structure located on top of his brainstem. This structure is known as the
    A) amygdala.
    B) thalamus.
    C) medulla.
    D) hippocampus.

121. Information from higher brain regions is transmitted to the medulla through the
    A) hypothalamus.
    B) hippocampus.
    C) amygdala.
    D) thalamus.

122. The reticular formation is a nerve network that travels through the _____ into the thalamus.
    A) brainstem
    B) amygdala
    C) hypothalamus
    D) cerebellum

123. Which region of your brainstem plays a role in arousing you to a state of alertness when, for example, you accidentally stumble over another person's misplaced pair of shoes?
    A) reticular formation
    B) hypothalamus
    C) amygdala
    D) hippocampus

124. Severing a cat's reticular formation from higher brain regions causes the cat to
    A) become violently aggressive.
    B) cower in fear.
    C) experience convulsive seizures.
    D) lapse into a coma.

125. Which baseball-sized structure at the rear of the brainstem serves many functions, including helping you to judge time and to discriminate sounds and textures?
    A) amygdala
    B) cerebellum
    C) hippocampus
    D) corpus callosum

126. Along with the basal ganglia, the _____ enables nonverbal learning and skill memory.
    A) amygdala
    B) cerebellum
    C) hypothalamus
    D) nucleus accumbens

127. After Kato's serious motorcycle accident, doctors detected damage to his cerebellum. Kato is most likely to have difficulty
    A) reading printed words.
    B) understanding what others are saying.
    C) tasting the flavors of foods.
    D) playing his guitar.

128. Conscious information processing is LEAST likely to be required for the automatic physical survival functions regulated by the
    A) hippocampus.
    B) thalamus.
    C) brainstem.
    D) amygdala.

129. A neural system at the border between the brainstem and the cerebral hemispheres is known as the
    A) pons.
    B) limbic system.
    C) reticular formation.
    D) medulla.

130. The neural center in the limbic system that processes explicit memories for storage is called the
    A) hypothalamus.
    B) thalamus.
    C) hippocampus.
    D) medulla.

131. The amygdala consists of emotion-linked neural clusters in the
    A) brainstem.
    B) reticular formation.
    C) limbic system.
    D) cerebellum.

132. S. M. is a patient who has been called “the woman with no fear,” even of being threatened with a gun. Her fearlessness is best attributed to damage to her
A) brainstem.
B) basil ganglia.
C) hypothalamus.
D) amygdala.

133. To demonstrate that brain stimulation can make a rat violently aggressive, a neuroscientist should electrically stimulate the rat's
A) reticular formation.
B) cerebellum.
C) medulla.
D) amygdala.

134. Which limbic system structure regulates thirst and body temperature?
A) medulla
B) amygdala
C) hippocampus
D) hypothalamus

135. The brain structure that provides a major link between the nervous system and the endocrine system is the
A) cerebellum.
B) amygdala.
C) reticular formation.
D) hypothalamus.

136. A brain tumor caused extensive damage to Mr. Thorndike's hypothalamus. It is most likely that he may suffer a loss of
A) visual perception.
B) muscular coordination.
C) sexual motivation.
D) language comprehension.

137. James Olds and Peter Milner located reward centers in the brain structure known as the
A) hypothalamus.
B) cerebellum.
C) medulla.
D) amygdala.

138. A limbic system reward center located in front of the hypothalamus is called the
    A) amygdala.
    B) reticular formation.
    C) pons.
    D) nucleus accumbens.

139. Our pleasurable "chills" response to a favorite piece of music is facilitated by the release of the neurotransmitter
    A) GABA.
    B) cortisol.
    C) ACh.
    D) dopamine.

140. Addictive disorders may stem from malfunctioning reward centers in the
    A) thalamus.
    B) cerebellum.
    C) reticular formation.
    D) limbic system.

141. About 85 percent of human brain weight comes from the
    A) hippocampus.
    B) cerebrum.
    C) corpus callosum.
    D) frontal lobes.

142. The cerebral cortex is the covering layer of the
    A) brainstem.
    B) corpus callosum.
    C) hippocampus.
    D) cerebrum.

143. Your conscious awareness of your own name and self-identity depends primarily on the normal functioning of your
    A) cerebellum.
    B) amygdala.
    C) hypothalamus.
    D) cerebral cortex.

144. Which portion of the cerebral cortex is most closely adjacent to the ears?
    A) parietal lobes
    B) temporal lobes
    C) occipital lobes
    D) frontal lobes

145. Which portion of the cerebral cortex is located nearest the top of the head just behind the frontal lobes?
    A) occipital lobes
    B) cerebellum
    C) parietal lobes
    D) limbic system

146. Which lobes of the brain receive the input that enables you to feel someone scratching your back?
    A) parietal
    B) temporal
    C) occipital
    D) frontal

147. The surgical removal of a large tumor from Dane's occipital lobe resulted in extensive loss of brain tissue. Dane is most likely to suffer some loss of
    A) muscular coordination.
    B) visual perception.
    C) speaking ability.
    D) pain sensations.

148. Auditory stimulation is processed in the _____ lobes.
    A) occipital
    B) temporal
    C) frontal
    D) parietal

149. The occipital lobes are to _____ as the temporal lobes are to _____.
    A) hearing; sensing movement
    B) seeing; sensing touch
    C) seeing; hearing
    D) speaking; hearing

150. The motor cortex is located in the _____ lobes.
    A) occipital
    B) temporal
    C) frontal
    D) parietal

151. A laboratory cat could be made to twitch its whiskers by direct stimulation of the _____ lobes of its cerebral cortex.
    A) temporal
    B) occipital
    C) frontal
    D) parietal

152. During open-brain surgery, Adam's left ankle twitched whenever the surgeon electrically stimulated a specific area within Adam's
    A) left frontal lobe.
    B) right frontal lobe.
    C) left parietal lobe.
    D) right parietal lobe.

153. Which of the following body parts is associated with the greatest amount of brain tissue in the motor cortex?
    A) arms
    B) face
    C) trunk
    D) knees

154. Using a brain-computer interface, some paralyzed people may be able to move a robotic limb simply by thinking about moving it. This best illustrates
    A) neurogenesis.
    B) constraint-induced therapy.
    C) cognitive neural prosthetics.
    D) neural plasticity.

155. In a clinical trial of a brain-computer interface with paralyzed humans, a 25-year-old man constructed shapes on a computer screen by activating neurons in his
    A) somatosensory cortex.
    B) occipital lobes.
    C) motor cortex.
    D) hippocampus.

156. The somatosensory cortex is most critical for our sense of
    A) sight.
    B) hearing.
    C) touch.
    D) smell.

157. Which part of your brain is essential for receiving information that you are moving your legs?
    A) corpus callosum
    B) hippocampus
    C) somatosensory cortex
    D) temporal lobes

158. Which of the following body parts is associated with the greatest amount of brain tissue in the somatosensory cortex?
    A) toes
    B) knees
    C) neck
    D) lips

159. The auditory hallucinations experienced by people with schizophrenia are most closely linked with the activation of areas in their
    A) motor cortex.
    B) parietal lobes.
    C) temporal lobes.
    D) somatosensory cortex.

160. The association areas are located in the
    A) brainstem.
    B) thalamus.
    C) hippocampus.
    D) cerebral cortex.

161. The most extensive regions of the brain are involved in higher mental functions such as memory and reasoning. These regions are called the
    A) somatosensory cortex.
    B) hippocampus.
    C) corpus callosum.
    D) association areas.

162. After he suffered a stroke, Mr. Santore's physical coordination skills and responsiveness to sensory stimulation quickly returned to normal. Unfortunately, however, he could no longer figure out how to find his way around his neighborhood. It is most likely that Mr. Santore suffered damage to his
A) cerebellum.
B) somatosensory cortex.
C) motor cortex.
D) association areas.

163. Knowing that you will be punished for breaking Mom's favorite dish is a function of the
A) somatosensory cortex.
B) corpus callosum.
C) association areas.
D) motor cortex.

164. The classic case of railroad worker Phineas Gage best illustrated that frontal lobe damage can
A) trigger muscle spasms.
B) enhance moral reasoning skills.
C) alter one's personality.
D) facilitate neurogenesis.

165. People's moral judgments are most likely to seem unrestrained by normal emotions if they have suffered damage to their
A) hippocampus.
B) somatosensory cortex.
C) corpus callosum.
D) frontal cortex.

166. Mathematical and spatial reasoning capacities are especially likely to be linked with association areas in the
A) parietal lobes.
B) temporal lobes.
C) occipital lobes.
D) frontal lobes.

167. Stimulation of _____ produced in patients a feeling of wanting to move an upper limb but without any limb movement.
    A) the motor cortex
    B) an association area
    C) the corpus callosum
    D) the somatosensory cortex

168. The inability to recognize familiar faces even though one can clearly see and describe features of the faces is associated with damage to the right _____ lobe.
    A) frontal
    B) parietal
    C) occipital
    D) temporal

169. The capacity of a brain area to reorganize in response to damage is known as
    A) lateralization.
    B) cognitive neural prosthetics.
    C) diffusion spectrum imaging.
    D) plasticity.

170. The benefits of brain plasticity are most clearly demonstrated in
    A) children who have had a cerebral hemisphere surgically removed.
    B) people paralyzed by a severed spinal cord.
    C) individuals with Alzheimer's disease.
    D) split-brain patients.

171. By restraining the use of his left hand, doctors helped Bruce to use and improve the coordination skills of his right hand. The doctors employed a technique known as
    A) cognitive neural prosthetics.
    B) neurogenesis.
    C) lateralization.
    D) constraint-induced therapy.

172. Brain plasticity may contribute to the effectiveness of
    A) neurogenesis.
    B) cognitive neural prosthetics.
    C) constraint-induced therapy.
    D) MRI scans.

173. The visual cortex is activated when blind people read Braille. This best illustrates
    A) plasticity.
    B) cognitive neural prosthetics.
    C) lateralization.
    D) neurogenesis.

174. If a slow-growing left-hemisphere tumor disrupts language, the right hemisphere may take over this language functioning. This best illustrates
    A) the split brain.
    B) neurogenesis.
    C) cognitive neural prosthetics.
    D) plasticity.

175. Without stimulation from sounds, a temporal lobe area normally dedicated to hearing may begin to process visual signals. This best illustrates
    A) plasticity.
    B) neurogenesis.
    C) lateralization.
    D) cognitive neural prosthetics.

176. A person whose hand had been amputated actually felt sensations on his nonexistent fingers when his arm was stroked. This best illustrates the consequences of
    A) neurogenesis.
    B) plasticity.
    C) lateralization.
    D) cognitive neural prosthetics.

177. The process of forming new neurons within the brain is called
    A) lateralization.
    B) cognitive neural prosthetics.
    C) neurogenesis.
    D) plasticity.

178. Thanks to the release of carbon isotopes in nuclear weapons tests, researchers have been able to detect the process of neurogenesis in the
    A) motor cortex.
    B) corpus callosum.
    C) somatosensory cortex.
    D) hippocampus.

179. Physical exercise, sleep, and exposure to nonstressful but stimulating environments are most likely to promote
    A) lateralization.
    B) neurogenesis.
    C) diffusion spectrum imaging.
    D) cognitive neural prosthetics.

180. There is some hope that _____ discovered in the human embryo can someday be used to generate replacements for damaged neurons in the brain.
    A) prosthetic tissue
    B) somatosensory neurons
    C) optic nerves
    D) stem cells

181. A tendency for the brain's left and right hemispheres to serve different functions is called
    A) cognitive neural prosthetics.
    B) lateralization.
    C) neurogenesis.
    D) plasticity.

182. The control of speech production by the left rather than the right hemisphere of the brain best illustrates
    A) neurogenesis.
    B) lateralization.
    C) cognitive neural prosthetics.
    D) plasticity.

183. Damage to the left cerebral hemisphere is most likely to reduce people's ability to
    A) solve arithmetic problems.
    B) copy drawings.
    C) recognize faces.
    D) recognize familiar melodies.

184. The corpus callosum is a wide band of axon fibers that
    A) enables the left hemisphere to control the right side of the body.
    B) transmits information between the cerebral hemispheres.
    C) controls the glands and muscles of the internal organs.
    D) transfers neural impulses from the somatosensory cortex to the motor cortex.

185. Those whose corpus callosum is surgically severed are said to be patients with
A) brain plasticity.
B) cognitive neural prosthetics.
C) neurogenesis.
D) split brains.

186. Neurosurgeons have severed the corpus callosum in human patients in order to reduce
A) lateralization.
B) epileptic seizures.
C) neural plasticity.
D) neurogenesis.

187. Optic nerves transmit information from the _____ visual field of _____ to the left cerebral hemisphere.
A) left; only the left eye
B) right; only the right eye
C) left; only the right eye
D) right; both the right and left eyes

188. A picture of a dog is briefly flashed in the left visual field of a split-brain patient. At the same time a picture of a boy is flashed in the right visual field. In identifying what she saw, the patient would be most likely to
A) use her left hand to point to a picture of a dog.
B) verbally report that she saw a dog.
C) use her left hand to point to a picture of a boy.
D) verbally report that she saw a boy.

189. The ability to simultaneously copy different figures with the right and left hand is most characteristic of those whose _____ has been cut.
A) somatosensory cortex
B) hippocampus
C) corpus callosum
D) motor cortex

190. When a person speaks, brain waves and bloodflow are especially likely to reveal increased activity in the
A) cerebellum.
B) left hemisphere.
C) hippocampus.
D) right hemisphere.

191. Deaf people who use sign language typically
    A) demonstrate greater mathematical competence than hearing persons.
    B) process language in their left cerebral hemisphere.
    C) have better communication skills than hearing persons.
    D) have a smaller corpus callosum than hearing persons.

192. In a recent car accident, Tamiko sustained damage to his right cerebral hemisphere. This injury is most likely to reduce Tamiko's ability to
    A) facially express emotions.
    B) solve arithmetic problems.
    C) understand simple verbal requests.
    D) correctly pronounce familiar words.

193. People who suffer partial paralysis as a result to damage to the _____will sometimes obstinately claim they can move a paralyzed limb.
    A) right cerebral hemisphere
    B) corpus callosum
    C) left cerebral hemisphere
    D) occipital lobes

194. People's failure to recognize themselves in a mirror is most likely to be associated with damage to the
    A) somatosensory cortex.
    B) left cerebral hemisphere.
    C) corpus callosum.
    D) right cerebral hemisphere.

195. Left-handedness is _____ common among males than females, and in both right- and left-handers the left hemisphere tends to be slightly _____ than the right hemisphere.
    A) less; smaller
    B) less; larger
    C) more; smaller
    D) more; larger

196. Compared with right-handers, left-handers are
    A) more likely to experience migraine headaches and less likely to suffer from allergies.
    B) less likely to experience migraine headaches and more likely to suffer from allergies.
    C) more likely to experience migraine headaches and more likely to suffer from allergies.
    D) less likely to experience migraine headaches and less likely to suffer from allergies.

197. Left-handedness is _____ common than usual among mathematicians and _____ common than usual among artists.
    A) less; more
    B) less; less
    C) more; less
    D) more; more

198. In Roger Sperry's view, the brain creates and controls the mind, which in turn influences the brain. Sperry understands the mind and brain as a
    A) cognitive neural prosthetic.
    B) holistic system.
    C) reward center.
    D) complex machine.

Answer Key

1. A
2. A
3. D
4. C
5. D
6. B
7. A
8. C
9. C
10. A
11. D
12. B
13. C
14. C
15. B
16. B
17. B
18. C
19. B
20. C
21. D
22. D
23. A
24. B
25. A
26. C
27. C
28. B
29. C
30. C
31. A
32. D
33. B
34. C
35. D
36. B
37. C
38. D
39. D
40. B
41. D
42. B
43. A
44. D

45. B
46. C
47. A
48. B
49. C
50. D
51. D
52. D
53. C
54. D
55. B
56. A
57. C
58. A
59. D
60. D
61. C
62. A
63. C
64. D
65. C
66. B
67. B
68. B
69. B
70. C
71. D
72. A
73. D
74. A
75. A
76. D
77. D
78. B
79. B
80. A
81. A
82. C
83. C
84. B
85. C
86. C
87. C
88. D
89. B
90. D

91. B
92. D
93. C
94. B
95. B
96. B
97. C
98. C
99. A
100. C
101. D
102. B
103. C
104. B
105. A
106. C
107. B
108. C
109. A
110. B
111. B
112. B
113. A
114. C
115. D
116. B
117. A
118. D
119. D
120. B
121. D
122. A
123. A
124. D
125. B
126. B
127. D
128. C
129. B
130. C
131. C
132. D
133. D
134. D
135. D
136. C

137. A
138. D
139. D
140. D
141. B
142. D
143. D
144. B
145. C
146. A
147. B
148. B
149. C
150. C
151. C
152. B
153. B
154. C
155. C
156. C
157. C
158. D
159. C
160. D
161. D
162. D
163. C
164. C
165. D
166. A
167. B
168. D
169. D
170. A
171. D
172. C
173. A
174. D
175. A
176. B
177. C
178. D
179. B
180. D
181. B
182. B

183. A
184. B
185. D
186. B
187. D
188. D
189. C
190. B
191. B
192. A
193. A
194. D
195. D
196. C
197. D
198. B

1. A neuron is best described as a(n)
   A) ion.
   B) cell.
   C) sheath.
   D) molecule.

2. Drugs that block the reuptake of serotonin will thereby increase the concentration of serotonin molecules in the
   A) axon terminals.
   B) synaptic gaps.
   C) glial cells.
   D) endocrine glands.

3. Natural, opiate-like neurotransmitters linked to pain control are called
   A) ACh agonists.
   B) dendrites.
   C) morphine antagonists.
   D) endorphins.

4. Botox injections smooth facial wrinkles because botulin is a(n)
   A) ACh antagonist.
   B) dopamine antagonist.
   C) ACh agonist.
   D) dopamine agonist.

5. The vast majority of neurons in the body's information system are
   A) glial cells.
   B) interneurons.
   C) motor neurons.
   D) sensory neurons.

6. As needed, the sympathetic nervous system _____ blood sugar levels and _____ the pupils of the eyes.
   A) lowers; dilates
   B) raises; contracts
   C) lowers; contracts
   D) raises; dilates

7. While listening to operatic solos, musicians process the lyrics and the tunes in separate brain areas. This most clearly illustrates the functioning of different
   A) neurotransmitters.
   B) parathyroids.
   C) neural networks.
   D) reflex systems.

8. The endocrine system consists of
   A) myelin sheaths.
   B) neural networks.
   C) interneurons.
   D) glands.

9. Which hormone enables contractions associated with birthing and milk flow during nursing?
   A) insulin
   B) cortisol
   C) oxytocin
   D) epinephrine

10. Which of the following would be most useful for detecting the brain areas that are most active as a person performs mathematical calculations?
    A) a brain lesion
    B) enlarged ventricles
    C) a PET scan
    D) an MRI scan

11. Which region of the brain appears to have the oldest evolutionary history?
    A) hippocampus
    B) amygdala
    C) brainstem
    D) hypothalamus

12. Which brain structure relays information from the eyes to the visual cortex?
    A) thalamus
    B) amygdala
    C) medulla
    D) cerebellum

13. After suffering an accidental brain injury, Kira has difficulty walking in a smooth and coordinated manner. She has probably suffered damage to her
    A) amygdala.
    B) hypothalamus.
    C) cerebellum.
    D) corpus callosum.

14. The limbic system structure that regulates hunger is called the
    A) thalamus.
    B) amygdala.
    C) hippocampus.
    D) hypothalamus.

15. Which portion of the cerebral cortex is most directly involved in making plans and formulating moral judgments?
    A) occipital lobes
    B) frontal lobes
    C) temporal lobes
    D) parietal lobes

16. The brain devotes more tissue within the _____ for body areas requiring the most precise movement control such as the fingers.
    A) hippocampus
    B) corpus callosum
    C) occipital lobes
    D) motor cortex

17. The regions of the parietal lobes that are involved in mathematical and spatial reasoning are known as
    A) the hippocampus.
    B) the corpus callosum.
    C) the somatosensory cortex.
    D) association areas.

18. If you lose a finger, the somatosensory cortex that received its input will begin to pick up signals from the neighboring fingers. This best illustrates the value of
    A) neurogenesis.
    B) lateralization.
    C) plasticity.
    D) hemispherectomy.

19. Speech is processed primarily in the right hemisphere by the _____ of those who are left-handed and by the _____ of those who are right-handed.
    A) minority; minority
    B) majority; majority
    C) minority; majority
    D) majority; minority

Answer Key

1. B
2. B
3. D
4. A
5. B
6. D
7. C
8. D
9. D
10. C
11. C
12. A
13. C
14. D
15. B
16. D
17. D
18. C
19. A